

ПУБЛІКАЦІЇ

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***(Global Education News)
світового рейтингу університетів
Quacquarelli Symonds***

***Журнал має
близько 20 тисяч користувачів по всьому світу,
отже публікації
про КПІ ім. Ігоря Сікорського в GEN
сприяють формуванню позитивного іміджу
університету в світі.***

*Публікація в журналі GEN № 3,
лютий 2021 року*

Igor Sikorsky Kyiv Polytechnic Institute contributes to Hayabusa2 mission

December 5, 2020, marked the successful completion of the primary stage of JAXA's Hayabusa2 mission. That day the capsule containing samples from asteroid Ryugu finally returned to Earth. Mission's success could not have been achieved without the involvement of researchers from Ukraine's Igor Sikorsky Kyiv Polytechnic Institute, who developed heat pipes for MASCOT – one of the four rovers that were on board the Hayabusa2 spacecraft.

The mission began on December 3, 2014, when Hayabusa2 was launched from the Tanegashima Space Center in southern Japan. It was destined for Ryugu, a C-type asteroid, whose orbit cuts between those of Earth and Mars. Spacecraft's flight to Ryugu covered more than 300 million kilometers and lasted nearly three and a half years. In October 2018 MASCOT took asteroid's photos, then landed on Ryugu's surface and collected rock samples for research. In total, this lithium battery-run rover had been in operation for over 17 hours.

MASCOT was developed by the German Aerospace Center and the French National Center for Space Studies in conjunction with Igor Sikorsky Kyiv Polytechnic Institute (KPI). KPI was entrusted with the task of designing and manufacturing high-efficiency heat transfer units for the rover with variable thermal resistance. The project was carried out by a team of researchers representing KPI Faculty of Heat and Power Engineering, who worked under Prof. Volodymyr Kravets. It took the team over three months to run experiments, and two months more to fine-tune configuration, as well as to make dozens of prototypes to get the goal. Ultimately researchers succeeded in creating the sound heat units, developing pipes made of metal fiber material with a highly porous structure. Taking an innovative approach, they increased material's porosity from 60% to 90%, which resulted in higher heat transfer efficiency.



Prof. Volodymyr Kravets (pictured center) presents a prototype of heat pipes designed for the MASCOT rover

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*Публікація в журналі GEN № 5,
серпень 2021 року*

KPI fosters research, innovation through collaboration

The Igor Sikorsky Kyiv Polytechnic Institute (KPI) is elaborating curricula that teach job-relevant skills to help ensure graduates are ready for the workforce. Closer collaboration with innovators of high-tech companies is one of the essential elements of teaching at KPI.

Ajax Systems headed by KPI graduate Oleksandr Konotopskyi serves as an illustrative example. Konotopskyi's endeavours have led to the emergence of a world-class security system. Ajax Security System is a mobile app, which turns the security system into a user-friendly gadget. The project has received recognition in Europe and won the titles of "Intruder Alarm of the Year" and "Best Innovative Product".

DELFAST, Ukrainian developer of e-bike, is another striking example. Cooperation with the company contributed to the establishment of a joint R&D centre at KPI in 2020. DELFAST created the e-bike that set a world record for the range on a single charge. Currently, students are developing a multi-function vehicle, which can be used by people with disabilities.

In 2020 KPI has started to collaborate with **Aeroprakt**, the innovation company in the sphere of aerospace technologies. The company plans to support students in their efforts to build a single-seat aircraft.

KPI fosters research, innovation through collaboration



Ukraine - The Igor Sikorsky Kyiv Polytechnic Institute (KPI) has developed several programmes to ensure graduates are job-ready.

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DELFAST, Ukrainian developer of e-bike, also collaborated with the university leading to the establishment of a joint R&D centre at KPI in 2020. DELFAST created the e-bike that set a world record for the range on a single charge.

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Igor Sikorsky Kyiv Polytechnic Institute develops nanosatellites to explore Earth and space

Currently, Ukraine's Igor Sikorsky Kyiv Polytechnic Institute (KPI) is developing new nanosatellites PolyITAN of the CubeSat class. They will be used for exploring space and processes occurring on Earth. Plans are in hand to orbit one of the satellites, namely PolyITAN-3, in 2021.

Specifically, Igor Sikorsky KPI is building the satellite in conjunction with Poland's Poznan University of Technology.

To date, the engineering model PolyITAN-3 is still in the pipeline. The vehicle can be used for remote sensing of the Earth, environmental monitoring, earthquake forecasting, and research in ionosphere. The main mission of the satellite is to take photographs and transmit data to Earth.

The third PolyITAN will transmit images of the Earth: it will photograph and transfer the data for research. The satellite is distinguished by an additional unit designed for photography and by the special wings that enable an increase in the power supply of satellites.

Simultaneously, the team of designers is working on three more nanosatellites. Each of them will carry out its mission in outer space.

For instance, PolyITAN-4 is projected to be used for bioexperiments on plants as well as for lunar programs. The fifth PolyITAN will be designed for the exploration of Earth's electronic field and the characteristics of cataclysms, such as earthquakes and tsunamis.

It is worth noting that the first test KPI-built nanosatellite PolyITAN-1 was put into a low Earth orbit in June 2014, and the team still receives signals and all the necessary information from it. The second satellite, PolyITAN-2-SAU, took the measurements of Earth's lower thermosphere for the purpose of exploring climate change. It was built within the framework of the QB50 project and put into space in 2017.

KPI develops nanosatellites to explore Earth and space

Ukraine - The Igor Sikorsky Kyiv Polytechnic Institute (KPI) is developing new nanosatellites, PolyITAN, of the CubeSat class. They will be used for exploring space and processes occurring on Earth. Plans are in hand to orbit one of the satellites, namely PolyITAN-3, in 2021.

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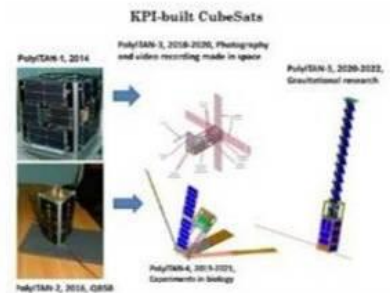
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**Публікація в журналі GEN № 7,
березень 2022 року**

KPI students win gold, silver awards at international events

Ukraine - Winning an award at an international event is an impressive achievement for any student.

Sofiia Pavlova, first-year student at the Faculty of Informatics and Computer Science (FICS) under Igor Sikorsky Kyiv Polytechnic Institute (KPI), won a gold award at the 45th international invention show INOVA 2021 that took place in Croatia on 13-16 October 2021. She presented the project of a virtual-reality laboratory designed for environmental monitoring. The system collects information by means of drones and land-based robots, displays environmental monitoring data through a web-based interface and gives tips to maintain clean air.

Her FICS classmate Olga Borovyk won a gold award at the International Festival of Engineering Science and Technology, which was held in Tunisia last year. Borovyk gave the presentation on her research project entitled "Lens with Variable Optical Characteristics".

Yelyzaveta Stoliarchuk and Volodymyr Karan, sophomores at the KPI Institute for Applied System Analysis, won silver awards at the Challenge and Innovation Forum Qatar 2021, which took place on 7-11 November. The forum's format included two main competitions, the exhibition of the best inventions, and a hackathon. During the best inventions competition participants developed their unique ideas from scratch into a startup within 48 hours.

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Clockwise from top left: Sofiia Pavlova, Olga Borovyk, Volodymyr Karan, Yelyzaveta Stoliarchuk

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KPI hosts 10th Festival of Innovation Projects 'Sikorsky Challenge 2021: Ukraine & the World'

The 10th Anniversary Festival of Innovation Projects "Sikorsky Challenge 2021: Ukraine & the World" took place at Ukraine's Igor Sikorsky Kyiv Polytechnic Institute (KPI) on August 12-14 on the eve of the 30th anniversary of Ukraine's Independence. Events within festival's framework lasted three days.

The purpose of the festival was to pinpoint the most interesting and relevant projects in various technical fields as well as to assist the authors of the best projects in their commercialization, establishment of successful startup companies, bringing innovation products to home and international markets.

A topic covering engineering developments for the defense industry hit the highlight. The festival opened on August 12 with the International Defense Investment Forum presided over by Oleh Urusky, Deputy Prime Minister of Ukraine. Development prospects of Ukraine's defense industry until 2030 were under discussion.

No doubt the main event of the festival was the competition of innovative projects "Sikorsky Challenge", for which 320 projects were submitted. The council of experts short-listed 130 startup projects for the finals in six areas: "Defense & Security"; "Industrial High-Tech & Space"; "Green Energy, Hydrogen Economy, Ecology"; "Biomedical Engineering & Human Health"; "Agricultural Engineering"; "Information Technology, Digital Country, Cybersecurity".

The authors of the projects qualified for the finals told about their engineering developments both offline on the festival grounds and online from other cities, even other countries – in video conference mode.

The international jury composed of experts from the United States, Israel, China, Azerbaijan and Ukraine determined the winners of the startup project competition by nominations, while representatives of innovation business, investment companies and investment funds selected the most interesting projects. Investors will work with the teams of authors on the commercial viability of winning projects.

This year Sikorsky Challenge 2021: Ukraine & the World gathered representatives of government agencies, foreign embassies in Ukraine, SCU international offices (U.S., Israel, China, Azerbaijan), innovative clusters in

cities/regions and startup schools “Sikorsky Challenge Ukraine” (SCU) based in the cities of Vinnytsia, Mariupol, Kramatorsk, Severodonetsk, Poltava, Kherson, Kryvyi Rih and Lutsk.

Overall, the best inventors from 19 regions of Ukraine and five countries converged on the KPI’s festival.

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*Публікація в журналі GEN № 8,
травень 2022 року*

Igor Sikorsky KPI's Lyceum student wins gold award for landmine detection quadcopter

During barbaric Russian aggression against Ukraine young Ukrainian researchers and innovators reoriented their engineering developments to military purposes.

Ihor Klymenko, student at the Polytechnic Lyceum under the Igor Sikorsky Kyiv Polytechnic Institute (KPI), won a gold award at the virtual Malaysia Technology Expo (MTI) that took place on March 21-25, 2022. He developed a landmine detection quadcopter capable of quickly pinpointing dangerous explosives.

This drone has some benefits that are not related to flight: it is compact and portable, fitting into a regular backpack. Ihor Klymenko's landmine detector minimizes human involvement, therefore it saves the lives of deminers.

MTE is one of the largest exhibitions of technology and innovation in Southeast Asia, which annually brings together inventors from more than 30 countries. Participants in the event demonstrate their developments to scientists, representatives of international corporations, engineers and investors.

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The drone, which is compact and portable, fits into a regular backpack. It also minimises human involvement, therefore possibly saving the lives of deminers.

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